



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,593	12/28/2001	Erwin Frederick Siegel	10004013	2882

7590 04/05/2005  
AGILENT TECHNOLOGIES  
Legal Department, 51U-PD  
Intellectual Property Administration  
P.O. Box 58043  
Santa Clara, CA 95052-8043

EXAMINER

PATHAK, SUDHANSHU C

ART UNIT	PAPER NUMBER
----------	--------------

2634

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/035,593	Applicant(s) SIEGEL ET AL.	
	Examiner Sudhanshu C. Pathak	Art Unit 2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on November 28<sup>th</sup>, 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7 and 8 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on November 28<sup>th</sup>, 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1-to-14 are pending in the application.

#### ***Specification***

2. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 6, 9, 11 & 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamaki et al. (5,784,285) in view of Ahuja et al. (5,740,036).

Regarding to Claims 1, 3, 6, 9, 11 & 14, Tamaki discloses a waveform analyzer (method) for analyzing the received signal after filtering the noise

components of the received signal so as to display a filtered signal (Column 1, lines 10-38, 64-67) comprising an analyzer for wavelet transforming into a plurality of wavelet spectra using the orthogonal analyzing wavelets (Abstract, lines 1-6 & Column 2, lines 37-67 & Column 3, lines 6-40 & Column 4, lines 16-22, 33-60 & Column 5, lines 1-7 & Claim 1 & Fig. 3, elements 62-63 & Fig. 6A-H). Tamaki also discloses "thresholding" the correlation values of the wavelet analyzed components so as to determine which components to remove and which to combine to determine the composite "filtered" received signal wherein the component(s) with a correlation result smaller (less) than the threshold value are removed and the component(s) with the correlation result bigger (greater) than the threshold value are combined to comprise the composite "filtered" signal (Column 3, lines 1-5, 30-40 & Column 6, lines 1-12 & Claim 3 & Fig. 4). Tamaki also discloses setting a filtering process parameter, depending on the operator experience, to determine which frequency component is to be removed or reduced (Column 2, lines 1-4). Tamaki also discloses suppressing a high frequency component corresponding to the noise component (Column 2, lines 5-11). Tamaki also discloses the measured data is wavelet-transformed and after noise cancellation the spectra are inverse-wavelet-transformed to produce the wavelet-analyzed components (Abstract, lines 1-11 & Column 2, lines 39-50, 59-65). However, Tamaki does not explicitly disclose generating a low frequency and high frequency components from the input signal, thresholding

the high frequency component and the filtered output signal being identical to the input signal if the threshold value is zero.

Ahuja discloses applying a wavelet transform and filter operations to a digital data corresponding to measurements (Abstract, lines 1-8 & Column 1, lines 14-50). Ahuja also discloses sampling the measured physical signal (attribute) and decomposing the digital signal into a frequency domain representation through several levels of wavelet decomposition (Column 5, lines 1-6, 39-42). Ahuja also discloses wavelet decomposition generating a high-pass component and a low-pass component (Column 5, lines 42-54 & Column 6, lines 8-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Ahuja teaches performing wavelet transforms and filter operations on a measured data which decomposes the received signal into low-pass and high-pass frequency components and this technique can be implemented in the waveform analyzer as described in Tamaki so as to provide a detailed analysis and noise filtering of the received signal. Furthermore, it is a matter of design choice in performing the "thresholding analysis" based on the amplitude attribute of the received signal instead of the correlation attribute; there is no criticality in the parameter of the received signal chosen to compare with the corresponding reference value so as to eliminate the desired signals. Furthermore, if the threshold value is set to zero none of the components are suppressed thus all the frequency components are combined and the filtered signal is identical to the input signal. Furthermore, there is no criticality

selecting the threshold dependent on the low frequency signal this is a matter of design choice.

5. Claims 2 & 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamaki et al. (5,784,285) in view of Ahuja et al. (5,740,036) in further view of Shark et al. (Signal Processing Proceedings, 2000. WCCC-ICSP 2000. 5th International Conference on Volume 1, 21-25 Aug. 2000 Page(s): 315 – 320).

Regarding to Claims 2 & 10, Tamaki in view of Ahuja discloses a waveform analyzer (method) for analyzing the received signal after filtering the noise components of the received signal so as to display a filtered signal comprising an analyzer for wavelet transforming into a plurality of wavelet spectra using the orthogonal analyzing wavelets and discloses “thresholding” the correlation values of the wavelet analyzed components so as to determine which components to remove and which to combine to determine the composite “filtered” received signal as described above. However, Tamaki in view of Ahuja does not disclose the analyzer further comprising a plurality of finite impulse response (FIR) filters.

Shark discloses wavelet filter banks (Daubechies) comprising an analysis section to decompose the input signal by using two filters and a synthesis section to reconstruct the input signal again by using two filters (Abstract, Page 315 & Property Formulation, Page 315 & Fig. 1). Shark further discloses the filters comprise a finite impulse response (FIR) filters (Page 316, left-hand column). Therefore, it would have been obvious to one of

ordinary skill in the art at the time of the invention that Shark teaches a wavelet transformation on comprising a plurality of filter banks, and this can be implemented in the analyzer (method) as described in Tamaki in view of Ahuja so as to avoid a long output for a short input signal thus satisfying the limitations of the claim.

6. Claims 4-5 & 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamaki et al. (5,784,285) in view of Ahuja et al. (5,740,036) in further view of Applicant Admitted Prior Art (AAPA).

Regarding to Claims 4-5 & 12-13, Tamaki in view of Ahuja discloses a waveform analyzer (method) for analyzing the received signal after filtering the noise components of the received signal so as to display a filtered signal comprising an analyzer for wavelet transforming into a plurality of wavelet spectra using the orthogonal analyzing wavelets and discloses "thresholding" the correlation values of the wavelet analyzed components so as to determine which components to remove and which to combine to determine the composite "filtered" received signal wherein the measured signal is performed a mathematical transformation and is inverse mathematical transformation to the filtered signal as described above. However, Tamaki in view of Ahuja does not disclose the input signal converter generate a signal having an amplitude determined by the logarithm of the input signal.

The Applicant Admitted Prior Art (AAPA) discloses an input signal converter so as to generate a signal having amplitude determined by the logarithm of the input signal (Page 2, lines 1-8). Therefore, it would have

Art Unit: 2634

been obvious to one of ordinary skill in the art at the time of the invention that the AAPA teaches implementing a input signal converter and this can be implemented in the waveform analyzer so as to provide a more useful display of the signals, thus satisfying the limitation of the claim. Furthermore, there is no criticality so as to process the input signal amplitude either in logarithm of the input signal or square of the input signal this is a matter of design choice.

***Allowable Subject Matter***

7. Claims 7 & 8 are allowable over the prior art of record.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, it is recommended to the applicant to amend all the claims so as to be patentable over the cited prior art of record. A detailed list of pertinent references is included with this Office Action (See Attached "Notice of References Cited" (PTO-892)).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhanshu C. Pathak whose telephone number is (571)-272-3038. The examiner can normally be reached on M-F: 9am-6pm.


- If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571)-272-3056
- The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Art Unit: 2634

- Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sudhanshu C. Pathak



**STEPHEN CHIN**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**